

CMSC 122 Quiz 4 Worksheet

Quiz #4 for the course will be on Wednesday, Nov 9 at the beginning of the class. The following list provides more information about the quiz:

- The quiz will be a written quiz (no computer).
- Closed book, closed notes quiz.
- Answers must be neat and legible.
- **You must use a pencil (NOT PEN).**
- Check the information available at <http://www.cs.umd.edu/~nelson/classes/examRules.html>

The following exercises cover the material to be included in this quiz. Solutions to these exercises will not be provided, but you are welcome to discuss your solutions with the TA or instructor during office hours. When asked to write JavaScript code only provide what will appear in the `<script>` `</script>` section (no need for `<html>`, `<head>`, `<body>`, or `DOCTYPE`). We recommend you answer the problems on paper first, and then verify your solutions using the computer.

Exercises

1. Write a function named "find" that has the following prototype:

function find(data, target)

data → represents an array of integers, target → integer value

The function will return true if target is one of the values in the array, and false otherwise. You may not use any input or output statements in the function. Write a main function that tests your function.

2. Write a JavaScript function named "findInstances" that has the following prototype:

function findInstances(values, target)

values → represents an array of integers, target → integer value

The function will return the number of entries in the array whose value corresponds to target. For example, the following code fragment uses the function you need to define. The number displayed is 3.

```
var a = [10, 20, 10, 10]; // this is an integer array with the specified values
alert(findInstances(a, 10));
```

You may not use any input or output statements in the function.

3. Write a function named "doubleValues" that has as parameter an array of integer values and that updates each array entry with twice the original value. You may not use any input or output statements in the function. Write a main function that tests your function.

4. Write a function named "equals" that has the following prototype:

function equals(first, second)

The function has two integer arrays as parameters and returns true if the arrays have the same values. For example, for:

first → 10, 3, 7 and second → 10, 3, 7 equals will return true

first → 10, 7, 3 and second → 10, 3, 7 equals will return false

first → 10, 3, 7 and second → 10, 3, 7, 8 equals will return false

You may not use any input or output statements in the function.

5. Write a function named "filter" that has the following prototype:

function filter(data, cutoff)

The function will create and return a new array with entries from the data integer array with a value less than or equal to cutoff. The function will return **null** if there are no entries that satisfy the specified criteria. You may not use any input or output statements in the function.